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Impact of Video on Learning in Students with Autism in Malaysia: Future Prospects

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Abstract

Use of video in Malaysia is seen as having a bright future because technology development is expanding even more now. Thirty articles related to use of video on students with autism have been investigated. Only 12 articles have been selected as appropriate for use as references for this study. This article looks at the future prospects of impact of video on learning of students with autism in Malaysia. The focus of this study is the use of video by experts, identifying behavior of students with autism in their use of video and determining the limitations of video and ways to overcome them. This study uses the Fuzzy Delphi approach to achieve consensus of experts on the focus of study. The findings show that usage of video is extremely effective on students with autism besides shaping the behavior desired. Although video has its limitations, these can be overcome in various ways as suggested by the experts and researchers.

Keywords: autism; video

1. Introduction

Autism in children is defined as children living in a world of their own. According to Leo Kanner (1943) autism refers to individuals who lack the capacity to adapt themselves to their environment in the normal way. Currently, one challenge in the Malaysian education system is to shift the paradigm toward change in approach

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to the latest learning using technology, ICT such Facebook, YouTube, video, Twitter and others as alternative approaches. Special needs teachers need to look for new ideas and teaching aids which are attractive and suitable such as video for teaching students with autism.

Video is a technology for capturing, recording, processing, transmitting and playback of moving pictures such as celluloid film, electronic signals or digital media. According to Banda (2009) video or video model refers to a recording of an individual who becomes a perfect behavior model for viewing and being followed by a student with autism to change the behavior of the student. The video model also is defined as change in behavior in the observer to fit the behavior displayed by the model in a video (Nikopoulos & Keenan, 2004).

Literature review and research on usage of video by special education teachers for students with autism in Malaysia still has not been done. Hence this study was carried out to identify the impact of video on learning of students with autism in Malaysia in future. Preliminary analysis carried out by the researchers through reviewing 30 articles from the Web of Science showed that all studies carried out overseas were focused on case studies on students with autism and not studies on teachers to obtain information on techniques for using video, impact of video usage and the strengths and weaknesses of using video in teaching students with autism.

Video model in general had been suggested as an effective strategy to teach various skills to students with autism (Delano, 2007). In Malaysia the use of video in learning by students with autism is still at low level. Hence it is timely for this study to be done especially to study the view and consensus of experts on the impact of video use by special needs teachers on learning of students with autism in Malaysia.

Jowett (2012) supported the use of video for helping and facilitating the learning of students with autism. Kevin Michael (2005) also proved that researchers could use video to teach various social and functional skills. The majority of past studies indicate that video models have succeeded in being used for learning in children with autism for behavioral modification, including daily life skills, social skills and communication skills (Banda, 2009; Monica, 2007). According to Stephen (2010), video model is an approach based on observational learning which is an effective learning strategy for students with autism who are incapable of improving in certain skills.

Through teaching playing skills to students with autism via video modeling, small group and observational learning, Arzu Ozen and Sema Batu (2012) found that video modeling was effective in teaching sociodramatic playing skills. Through the video modeling approach the students were found to enjoy learninge, and were aided in better understanding the content of learning. Besides that, Hine and Wolery (2009) found that it was clear that following several exposures to video, students with autism developed capability in using toys to play properly and could adapt themselves to other children.

Hence, this study details the findings of a research study using interview and questionnaire as instruments on experts drawn from lecturers, and experienced special needs teachers to study the future impact of video usage as an approach for learning in students with autism. Besides that, the experts also identified that there was a lack of usage of video by experts as a strategy for teaching students with autism.

2. Purpose of Study

This study is aimed at obtaining the views and consensus of experts on the impact of video on the learning of students with autism in Malaysia.

3. Objectives of the Study

This study is aimed at:

1. Getting the opinion of experts on the use of video in teaching and learning of students with autism.
2. Obtaining the views of experts in identifying the behavior of students with autism toward learning through video.
3. Obtaining the views of experts regarding the limitations of video use for special needs learning and ways to overcome the limitations.

4. Research questions

This study was implemented in order to answer the following research questions:

1. To what extent is video used in teaching students with autism?
2. What is the behavior of students with autism when learning with video is being carried out?
3. What are the limitations of video and how do we overcome them?

5. Methodology

This study uses the Fuzzy Delphi approach that is still new in the context of education in Malaysia. It was introduced by Kaufman and Gupta (1988). Fuzzy Delphi is a combination within the Delphi technique which contains several steps that must be followed to attain consensus from experts. Its process is fast and it reduces the number of cycles in the Delphi technique. Evaluation uses the value from 0 to 1 (Binary Terms).

The Fuzzy Delphi technique was chosen for this study because the validity of the Delphi approach is in doubt if researchers fail to select real experts. This results in boredom in experts who have to undergo repeated surveys. The number of experts is too small to evaluate/measure something big (Saedah Siraj, 2008).

Another factor that prevents the Delphi technique from being used is that the study is time consuming and requires repeated cycles, gives rise to inaccurate and incomplete data and the decision reached by experts depends on individual competency and is very subjective (Bojadziev & Bojadziev, 2007).

Implementation of the study was a two-step process; first, was a process of interviews involving 6 experts from Federal Territory, Penang, Malacca and Selangor aimed at developing the themes for the study. From the themes derived, a set of questionnaires was produced. The questionnaire was then distributed to 20 experts including the 6 experts interviewed earlier to identify the themes. Literature review showed that there was no study using Fuzzy Delphi approach in this field; existing studies were more focused on case studies and experimental studies.

6. Findings

Data obtained from the first, second and third interviews were collected and then subjected to thematic analysis. Three themes were identified, namely:

1) Use of video in teaching students with autism.
2) Behavior of students with autism during video learning.
3) Limitations of video and ways to overcome them.

Each expert had teaching experience of more than 15 years besides having deep knowledge of special needs education and agreed to take part in in interviews and answer the questionnaire in this study. Twenty experts in special needs education were selected for this study; they were lecturers in public universities, officers from the Special Education Unit, Senior Assistant for Special Education, and Special Education teachers from Kuala Lumpur, Selangor, Malacca and Penang.

The questionnaire for the study had undergone one cycle of Fuzzy Delphi approach. All the data involved were analyzed based on Triangular Fuzzy Number and Defuzzification Process. The score for each question was arranged according to a hierarchy.

Table 1: Expert Agreement Scores for What Video Means

Item	Score	Ranking
1.1	15	1

1.2	14.599	2
1.3	13.667	4
1.4	13.466	5
1.5	13.833	3

Referring to Table 1, the majority of experts agreed with item 1.1 with a score (15) showing that video is appropriate as a technology for recording an event. The experts were less in agreement with item 1.4 with a slightly lower score (13.466); the item was on video as a recording of human action. This item was to elicit the view of experts on what video means.

Table 2: Use of video in teaching and learning

Item	Score	Ranking
2.1	12.166	2
2.2	8.366	4
2.3	12.466	1
2.4	10.666	3

Referring to Table 2, the majority of experts agreed with item 2.3 with a score (12.466) showing that they use video in teaching and learning for students with autism. Item 2.2 with a score of 8.366 earned the minimum score and was on “never before used video in teaching and learning”. The researchers managed to answer the first research question by referring to Table 2.

This shows that the researchers have succeeded in obtaining high consensus on the use of video in teaching and learning for students with autism. It cannot be denied that video is a very useful communication tool and teaching aid for special needs teachers in this country.

Table 3:

Item	Score	Ranking
3.1	13.1	2
3.2	13	3
3.3	12.466	4
3.4	11.033	6
3.5	11.533	5
3.6	13.266	1

The findings of the study show that item 3.6 with a score of 13.266 clearly reflects that any topic to be taught depends on the interest of the student. A small number of experts responded to item 3.4 with a score of 11.033 showing the importance of documentaries.

Table 4: Behavior of students when learning with video

Item	Score	Ranking
4.1	12.466	1
4.2	12.166	2
4.3	9.6	4
4.4	11.866	3
4.5	12.166	2

With reference to Table 4, the majority of experts agreed with item 4.1 with a score of 12.466 showing that students are more active and exhibit interest during teaching and learning. Experts did not agree with the statement that students with autism did not give response when teaching and learning with video was carried out.

The behavior of students can be shaped by using video during teaching and learning. Students can give focus during the use of video technology.

Table 5: Emotions in learning with video

Item	Score	Ranking
5.1	13.3	1
5.2	10.566	3
5.3	12.1	2
5.4	8.966	4

Students with autism showed emotions of happiness when video was used in learning in item 5.1 with a score of 13.3. There were experts who still did not identify the students' emotion for item 5.4 with a score of 8.966.

Table 6: Helpfulness of video

Item	Score	Ranking
6.1	11.933	1
6.2	11	2
6.3	8.9	4
6.4	9.4	3

Referring to Table 6, the majority of experts agree with item 6.1 with a score of 11.933 that video is very helpful in the learning of students with autism. Not many experts agree that video was less helpful for item 6.3 with a score of 8.9.

Table 7: Limitations of video

Item	Score	Ranking
7.1	12.6	1

7.2	9.3	2
7.3	8.766	3

Table 7 shows expert findings for item 7.1 with a score of 12.6 indicating that the majority agree that video has its limitations. Students with autism need direct touch, they mimic or practice echolalia and are so involved in video that they refuse to follow writing activities.

Hence, in video usage, teachers need to plan the use of video in a scheduled manner to overcome such problems.

Table 8: Suggestions for using video in learning for students with autism

Item	Score	Ranking
8.1	14.4	1
8.2	10.566	8
8.3	11.166	7
8.4	11.166	7
8.5	11.766	5
8.6	10.433	9
8.7	13.3	2
8.8	12.9	3
8.9	11.433	6
8.10	12.566	4

Experts agreed with the suggestion in item 8.1 with a score of 14.4, that selection of video is important according to the student's level. A minority of experts somewhat disagreed with item 8.6 with a score of (10.433); the item related to building and recording the actions of a good student and displaying it for students with autism to follow.

The views of experts suggest that choosing and searching for videos suitable for the capability level of students with autism is the main factor in overcoming the limitations of video usage. Apart from that, other factors to take into account in overcoming the weaknesses of video include: the Special Education authorities must cooperate with the Autism Society of Malaysia to produce teaching and learning tools, increase the number of teaching aids in video form, increase the number of documentary stories because they reflect the reality of life, share with friends in other schools if they have video series suitable for use in T&L, TV / LCD screen must be big and easily viewed by all, the volume must be appropriate, and duration of viewing must not be too long, teacher must give explanation during the video screening and get ready real objects for the students during the video screening.

7. Implications and Recommendations

In general the study shows that video usage has an impact on teaching and learning in students with autism. For the researchers, even though the Fuzzy Delphi technique is difficult to implement it gives a lot of

inspiration and raises enthusiasm. The experience undergone and narrated by the experts was enough to make the researchers aware that care and gratefulness are the keys to effective teaching and learning through video.

The findings show that use of video among experts was encouraging although there existed limitations of resources, time and place. The preparation of place or location of video usage must suit the surroundings. The Ministry of Education and Teacher Training division should run courses and training sessions and provide materials in an intensive way to special education teachers who implement teaching through video by adapting the curriculum design in future.

Tips or suggestions from experts for teachers facing students with autism include: sharing of knowledge between NGOs and departments; for example, teachers attending seminars to unearth ideas for developing videos for students with autism. The approach of interactive video for special needs education for students with autism should be created in the state educational technology division with cooperation from lecturers and special education teachers. Traditional learning theories need to be adapted with the future curriculum because the pattern of learning to be used on students will change with time. It is undeniable that each approach has its strengths and weaknesses. Hence use of video for teaching and learning must be done in a structured, appropriate and objective manner.

According to the experts' view, the behavior of students with autism can be controlled while learning through video is in progress. Use of ICT on students with autism can help them develop understanding of teaching and learning and attract their attention, especially for videos containing positive and noble values. The teaching and learning process must be present during the viewing through question and answer sessions between teacher and student regarding what they have viewed. Indirectly this will create two-way communication that benefits the student in terms of language and social interaction.

When teachers use video, writing activities and sharing must be done in between viewing because this indirectly will encourage students with autism to cooperate with teachers in the hope that the students will continue watching the video and that the students' interest will be easily attracted. The likes of students with autism need to be widened; those who like only one activity should be encouraged to like varied activities in order to expand their minds. For example, the topic in a video should not just focus only on what interests them.

Teachers need to be aware and improve or make comments on improper behavior of the students during the video screening. The use of ICT has to be expanded to students with autism. Raising the motivation and interest of students will ensure attention on learning.

Any limitation can surely be overcome in some way. Findings of this study show that limitations exist in the usage of video in learning. Experts viewed that students with autism are easily influenced by mimicry and do not focus on other activities. Repeated exercises to develop focus and non-verbal responses should be encouraged. Use of video under teacher supervision and use of mind challenging videos so that they are not easily bored and do other activities during the viewing sessions will create an interesting learning environment. High functioning students with autism are given opportunity to make documentaries with guidance from teachers and their output will be shown in class.

Besides that, active involvement of parents in learning using video needs to be encouraged. Teachers need to exchange ideas with parents regarding this approach. Teachers should also be ready to answer if the students ask about what is being shown. Teachers need to share with parents any information or needs that must be fulfilled for their children.

Teachers need to plan the self-learning of students with autism to encourage the development of new ideas. Learning via video can lessen the mistakes in learning. The capability of students with autism to explore something being viewed is very encouraging and should be exploited for better outcomes.

References

Ahmer Iqbal, Marja Kankaanranta, & Pekka Neittaanmaki. (2010). Experiences and motivation of the participation in virtual worlds. *Procedia Social and Behavioral Sciences 2,* 3190 - 3197. doi: 10.1016/j.sbspro.2010. 03. 488

Amenda Kudler. (2007). *Timeline: Video Games*. Pearson Education. Retrieved from http://www.infoplease.com

Apperley, T. (2010). What games studies can teach us about videogames in the English and Literacy classroom. *Australian Journal of Language and Literacy*, *33*(1), 12-23.

Awang Sariyan. (2006). Pengajaran Bahasa Melayu kepada penutur asing: Matlamat dan pertimbangan strategi. *Jurnal Persatuan Linguistik*, (7), 1-15.

Brett, E. S., & Jon, S. (2011). Aligning game activity with educational goals: Following a constrained design approach to instructional computer games. Developmental article. *Education Technology Research Development*, 59, 113–138. doi: 10.1007/s11423-010-9175-0

Dickey, M. D. (2007). Game design and learning: A conjectural analysis of how massively multiple online role-playing games (MMORPGs) foster intrinsic motivation. *Educational technology research development*, 55, 253-273. doi: 10.1007/s11423-006-9004-7

Fa'izah Abdul Manan, Muhammad Amin Embi, & Zamri Mahamod.(2010). Kerangka pembangunan dan penilaian modul belajar cara belajar bahasa melayu untuk pelajar asing institusi pengajian tinggi malaysia. *AJTLHE: ASEAN Journal of Teaching and Learning in Higher Education,* 2(2)*,* pp. 64-76. ISSN 1985-5826.

Ibanez, M. B., Garcia, J. J, Sergio Galan, S., Maroto, D., Morillo, D., & Kloos,C.D. (2011). Design and implementation of 3D multi-user virtual world for language learning. *Educational Technology & Society, 14*(4)*,* 2-10.

Kamisah Osman, & Nurul Aini Bakar. (2011). Implementation of Educational Computer Games in Malaysian Chemistry Classroom: Challenges for Game Designers. *Recent Researches in Education*. Retrieved from www.wseas.us/e-library/conferences /2011/Penang/.../EDU-18.pdf

Laleh Aghlara, & Nasrin Hadidi Tamjid. (2011). The Effect of Digital Games on Iranian Children's vocabulary retention in foreign language acquisition. *Procedia Social and Behavioral Sciences*, 552-560. doi:10.1016/j.sbspro.2011.11.275

Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage. Retrieved from http://en.wikiversity.org/w/index.php?title=Meta-analysis&oldid=873348

Moreno-Ger, P. et al.(2008). Educational game design for online education. *Computers in Human Behavior*(2008). doi: 10.1016/j.chb.2008.03.012

Muhammet Demirbilek, Ebru Yilmaz, & Suzan Tamer. (2010). Second language instructors' perspectives about the use of educational games. *Procedia Social and Behavioral Sciences,* 717-721. doi.10.1016/j.sbspro.2010.12.223

Papastergiou, M. (2009). Exploring the potential of computer and video games for health and physical education: A literature review. C*omputers & Education, 53,* 603-622. doi:10.1016/j.compedu.2009.04.001

Peterson, M. (2010). Massively multiplayer online role-playing games as arenas for second language learning. *Computer Assisted Language Learning*, *21*(5), 441-445. doi:10.1080/09588221.2010.520673

Piirainen-Marsh, A., & Tainio, L. (2009). Collaborative Game-play as a Site Participation and Situated Learning of a Second Language. *Scandinavian Journal of Educational Research*, *23*(2), 167-183. doi:10.1080/00313830902757548

Ranalli, J. (2008). Learning English with The Sim: Exploiting authentic computer simulation games for L2 learning. *Computer Assisted Language Learning*, 21(5), 441-445. doi:10.1080/09588220802447859

Ricardo Rosas et al. (2003). Beyond Nintendo: Design and assessment of educational video games for first and second grade students. *Computers & Education, 40,* 71-94.

Rusdi Abdullah. (2001). Kecekapan menulis dalam bahasa melayu sebagai bahasa asing. *Prosiding Seminar Sehari Jabatan Bahasa Melayu dan Terjemahan*, 65-75.

Shih, M., Feng, J., & Tsai, C. C. (2008). Research and trends in the field of e-learning from 2001 to 2005: A content analysis of cognitive studies in selected journals. *Computers & Education, 51,* 955-967. doi: 10.1016/j.compedu.2007.10.004

Siti Baidura Kasiran, & Nurul Jamilah Rosly. (2011). Analisis kesalahan tatabahasa Bahasa Melayu dalam karangan pelajar asing di sebuah Institusi Pengajian Tinggi Awam. *2nd International Language Conference (ILC)Proceeding*.

Tuzun, H., et al. (2008). The effects of computer games on primary school students' achievement and motivation in geography learning. *Computers & Education.* doi: 10.1016/j.compedu.2008.06.008

Walsh, C. (2010). System-based literacy practices: Digital games research, gameplay and design. *Australian Journal of Language and Literacy, 33*(1)*,* 24-40.

Wikipedia the free encyclopedia. (2012). *Meta-analysis*. Retrieved from http://en.wikipedia.org/wiki/Meta-analysis

Yildiz Turgut, & Pelin Irgin. (2009). Young learners' language learning via computer games. *Procedia- Social and Behavioral Sciences 1*, 760-764. doi.10.1016/j.sbspro.2009.01.135